Streams: Concept of streams

C++ comes with libraries that provide us with many ways for performing input and output. In C++ input and output are performed in the form of a sequence of bytes or more commonly known as **streams**.

In **C++ stream** refers to the stream of characters that are transferred between the program thread and i/o.

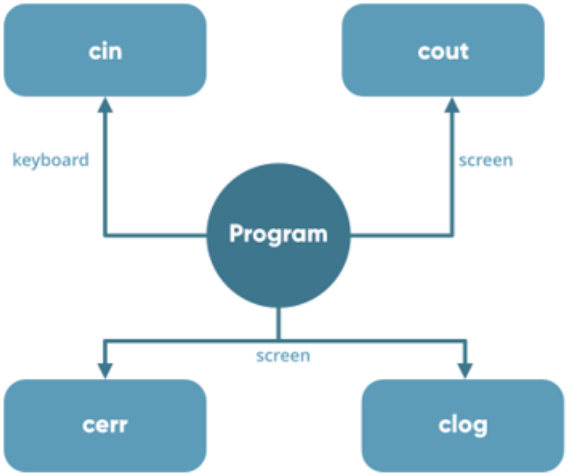
Stream classes in C++ are used to input and output operations on files and io devices. These classes have specific features and to handle input and output of the program.

The **iostream.h library** holds all the stream classes in the **C++ programming language**.

To read and write from a file we are using the standard C++ library called **fstream**. Let us see the data types define in fstream library is:

Data Type	Description
fstream	It is used to create files, write information to files, and read information from files.
ifstream	It is used to read information from files.
ofstream	It is used to create files and write information to the files.

- **Input Stream:** If the direction of flow of bytes is from the device(for example, Keyboard) to the main memory then this process is called input.
- **Output Stream:** If the direction of flow of bytes is opposite, i.e. from main memory to device(display screen) then this process is called output.



Header files available in C++ for Input/Output operations are:

1. **iostream**: iostream stands for standard input-output stream. This header file contains definitions of objects like cin, cout, cerr, etc.
2. **iomanip**: iomanip stands for input-output manipulators. The methods declared in these files are used for manipulating streams. This file contains definitions of setw, setprecision, etc.
3. **fstream**: This header file mainly describes the file stream. This header file is used to handle the data being read from a file as input or data being written into the file as output.
4. **bits/stdc++:** This header file includes every standard library. In programming contests, using this file is a good idea, when you want to reduce the time wasted in doing chores; especially when your rank is time sensitive.

```
#include <iostream>
#include <fstream>
using namespace std;
int main () {
  ofstream filestream("testout.txt");
  if (filestream.is_open())
  {
    filestream << "Welcome to SNS.\n";
    filestream << "Welcome to GCD .\n";
    filestream.close();
  }
  else cout <<"File opening is fail.";
  return 0;
}
```

The content of a text file **testout.txt** is set with the data:
Welcome to SNS
Welcome to GCD